Claim Rejections Under 35 U.S.C. § 102(b)

The Examiner rejected claims 1, 5 and 12 under 35 U.S.C. §102(b) as being anticipated by Larson (US 3,555,171 hereinafter, Larson). The Examiner contends that Larson discloses an apparatus comprising a housing (B) having an inner chamber and an outer surface; at least one free running hub (G) disposed on, and mounted to, said housing (B) and a flexible membrane (H) disposed within the inner chamber of said housing adjacent to said at least one free running hub. The Examiner also noted that the conduit was not positively recited in the previous version of the claims and thus gave no weight to Applicant's argument that Larson neither discloses a conduit nor teaches that its sealing device can be used in such applications.

Applicant has amended claim 1, and through their dependency claims 5 and 12, to positively recite the conduit. Indeed, claims 1, 5 and 12 now recite a sealed conduit system, which comprises a conduit. Since Larson discloses a cable seal, it does not anticipate the invention of amended claims 1, 5 and 12. Applicant respectfully requests that the Examiner withdraw his rejection of these claims as Applicant's amendment has now overcome the Examiner's rejection.

Moreover, the Applicant respectfully disagrees with the Examiner that Larson discloses a free running hub. A free running hub can be tighened down on one end (*e.g.*, the housing) without loosing its connection with the other (*e.g.*, the conduit). That is, each end of a free running hub is independent of the other. Larson discloses no such device. Rather, Larson discloses two PVC couplings (the outer parts G) that are threaded to a PVC adapter (the center piece B with the male threads at both ends). Larson's PVC couplings are not capable of being tightened or loosed on one end without having an impact on the other. As the PVC coupling is secured to the center piece B of Larson, it forces the hermetic H to fill the gap between the cable

and the inside surface of the PVC coupling, thus securing the PVC coupling to the cable. Consequently, the ends of the PVC coupling in Larson do not operate independent of each other. Thus, Larson does not disclose a free running hub, as required in independent claim 1 and dependent claims 5 and 12.

Accordingly, amended claims 1, 5 and 12 are patentably distinct from Larson and should therefore be allowed.

Claim Rejections Under 35 U.S.C. § 103(a)

The Examiner rejected claims 2-4 under 35 U.S.C. § 103(a) as being unpatentable over Larson in view of Cameron (US 5,560,655 hereinafter, Cameron). Claims 2-4 depend on claim 1 and recite various means for purging air, other gases and moisture, which may be trapped with the inner chamber of the housing. The Examiner acknowledges that Larson fails to disclose any kind of purging means. The Examiner thus relies on Cameron for the disclosure of such a device. The Examiner states that it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide to Larson's housing a purging means as taught by Cameron to improve the sealing of the conduit and also to provide means that permits the insertion of insulated materials inside the conduit. Since claims 2-4 depend on amended claim 1, they thus require a sealed conduit system, which comprises a conduit. As pointed out above, Larson fails to disclose such a system. Indeed, Larson has nothing to do with sealing conduits. Rather, it is used for solving a completely different problem, namely joining spliced electrical conductors using an insulated enclosure. *See* Larson, Abstract. Moreover, the insulated enclosure in Larson has no applicability to sealed conduits and would not work even as modified with the purging means of Cameron, as contended by the Examiner. More specifically, the insulated enclosure in Larson is formed of a self-extinguishing polyvinyl chloride. *See* Larson,

Col. 1, line 67. It thus cannot withstand Underwriter Laboratories' ("UL's") protocol tests for conduit seals, which require the seal to withstand certain hydrostatic pressures, water seepage tests and the solvent resistance of the sealing compound. Accordingly, a person of ordinary skill in the art seeking to build a better conduit seal would not look to Larson in the first place. Such a person would therefore not considering combining Larson and Cameron to arrive at Applicant's invention as now recited in amended claims 2-4. Accordingly, the Examiner rejection of claims 2-4 under 35 U.S.C. § 103(a) as being unpatentable over Larson in view of Cameron should be withdrawn.

The Examiner also rejected claims 6-8, 15, 17, 18 and 20 under 35 U.S.C. § 103(a) as being unpatentable over Larson in view of Hutchison (US 4,301,325 hereinafter, Hutchison). The Examiner contends that Hutchison teaches an apparatus for sealing a conduit (2), comprising a housing (11) at least one free running hub (4) comprising a first and second coupling wherein the first coupling comprises a first set of female threads formed on said inner surface for mating the ends of the housing and a second set of threads formed on said inner surface for mating with the ends of the conduit. Assuming argumendo that Hutchison discloses all of these elements, which Applicant does not concede, Hutchison still fails to teach Applicant's invention alone and in combination with Larson. Hutchison clearly fails to disclose a flexible membrane disposed within the at least one free running hub, as required by independent claims 1 and 15 and dependent claims 6-8, 17, 18 and 20. Furthermore, as pointed out above, Larson clearly fails to disclose a conduit. Moreover, for the reasons discussed immediately above, a person of ordinary skill in the art would not look to Larson in the first place to build a better conduit seal and thus would not combine the two references as suggested by the Examiner. Indeed, both references are completely devoid of the motivation for doing so.

Accordingly, the Examiner rejection of claims 6-8, 15, 17, 18 and 20 under 35 U.S.C. § 103(a) as being unpatentable over Larson in view of Hutchison should be withdrawn.

The Examiner also rejected claims 9, 10 and 13 under 35 U.S.C. § 103(a) as being unpatentable over Larson in view of Klein (US 4,456,784 hereinafter, Klein). Claims 9 and 10 recite a sealed conduit system further comprising a polyurethane-based epoxy sealant compound disposed in the inner chamber of the housing (claim 9), said sealant comprising a monomer and polymer (claim 10). Claim 13 is a method claim, which recites the step of filling the inner chamber of the housing with a polyurethane-based epoxy sealant compound. The Examiner cites Klein in this rejection for its purported disclosure of a polyurethane-based epoxy sealant compound. Klein, however, fails to disclose many aspects of the present invention as now claimed, including the free running hub and flexible membrane. Moreover, as pointed out above, a person of ordinary skill in the art would not look to Larson in the first place to build a better conduit seal and thus would not combine the two references as suggested by the Examiner. Accordingly, the Examiner's rejection of claims 9, 10 and 13 under 35 U.S.C. § 103(a) as being unpatentable over Larson in view of Klein should be withdrawn.

The Examiner has also rejected claims 11, 14 and 16 under 35 U.S.C. § 103(a) as being unpatentable over Larson alone and in combination with Klein and Cameron and Hutchison and Cameron, respectively. Each of these rejections should also be rejected for the reasons espoused above, namely that Larson has nothing to do with conduits and thus is not combinable with these other references.

Lastly, and perhaps most compelling, is that the modifications to Larson in view of Cameron, Hutchison and/or Klein suggested by the Examiner would ultimately result in a conduit seal system that would not work. More specifically, the resulting seal would not be

explosion proof because it would be formed out of plastic and thus not meet National Electrical Code standards. *See e.g.,* National Electrical Code Handbook, pages 636 and 644.

SUMMARY

In light of the above remarks, reconsideration and withdrawal of the outstanding rejection is respectfully requested. Early notice of the allowance is earnestly solicited. Should the Examiner have any questions, comments or suggestions in furtherance of the prosecution of this application, the Examiner is invited to contact the agent of record by telephone or facsimile. If there are any fees due with the filing of this Response, including any fees for an extension of time, Applicants respectfully Petition the Commissioner for such an extension and direct that any and all fees be charged to Baker Botts L.L.P., Deposit Account No. 02-0383, *(formerly Baker & Botts, L.L.P.,)* Order Number 002905.0110.

Respectfully submitted,

BAKER BOTTS L.L.P. (023640)

Date: March 14, 2003

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ATTORNEY FOR APPLICANT

(3) Two or More Explosionproof Enclosures. Where two or more explosionproof enclosures for which conduit seals are required under 501.5(A)(1) are connected by nipples or by runs of conduit not more than 900 mm (36 in.) long, a single conduit seal in each such nipple connection or run of conduit shall be considered sufficient if located not more than 450 mm (18 in.) from either enclosure.

An example of 501.5(A) requirements for the location of conduit seals in Class I, Division 1 locations is illustrated in Exhibit 501.6. In the example shown in Exhibit 501.6, two seals are required so that the run of conduit between Enclosure No. 1 and Enclosure No. 2 is sealed.

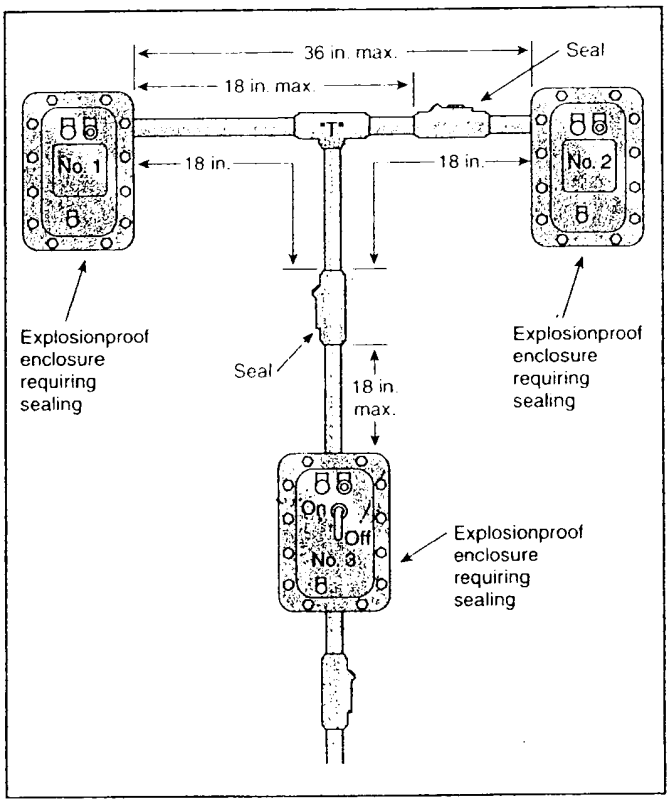

Exhibit 501.6 Two seals are required so that the run of conduit between Enclosure No. 1 and Enclosure No. 2 is sealed. Even if Enclosure No. 3 were not required to be sealed, the vertical seal in the vertical run of conduit to Enclosure No. 3 would be required to be sealed within 18 in. of Enclosure No. 1, because the vertical conduit run to the "T" fitting is a conduit run to Enclosure No. 1.

(4) Class I, Division 1 Boundary. In each conduit run leaving a Class I, Division 1 location. The sealing fitting shall be permitted on either side of the boundary of such location within 3.05 m (10 ft) of the boundary and shall be designed and installed so as to minimize the amount of gas or vapor within the Division 1 portion of the conduit from being communicated to the conduit beyond the seal. Except for listed explosionproof reducers at the conduit seal, there shall be no union, coupling, box, or fitting between the conduit seal and the point at which the conduit leaves the Division 1 location.

Exception No. 1: Metal conduit that contains no unions, couplings, boxes, or fittings and passes completely through a Class I, Division 1 location with no fittings less than 300 mm (12 in.) beyond each boundary shall not require a conduit seal if the termination points of the unbroken conduit are in unclassified locations.

Exception No. 2: For underground conduit installed in accordance with 300.5 where the boundary is beneath the ground, the sealing fitting shall be permitted to be installed after the conduit leaves the ground, but there shall be no union, coupling, box, or fitting, other than listed explosionproof reducers at the sealing fitting, in the conduit between the sealing fitting and the point at which the conduit leaves the ground.

(B) Conduit Seals, Class I, Division 2. In Class I, Division 2 locations, conduit seals shall be located in accordance with 501.5(B)(1) and (B)(2).

(1) Entering Enclosures. For connections to enclosures that are required to be explosionproof, a conduit seal shall be provided in accordance with 501.5(A)(1)(1) and (A)(3). All portions of the conduit run or nipple between the seal and such enclosure shall comply with 501.4(A).

(2) Class I, Division 2 Boundary. In each conduit run passing from a Class I, Division 2 location into an unclassified location. The sealing fitting shall be permitted on either side of the boundary of such location within 3.05 m (10 ft) of the boundary and shall be designed and installed so as to minimize the amount of gas or vapor within the Division 2 portion of the conduit from being communicated to the conduit beyond the seal. Rigid metal conduit or threaded steel intermediate metal conduit shall be used between the sealing fitting and the point at which the conduit leaves the Division 2 location, and a threaded connection shall be used at the sealing fitting. Except for listed explosionproof reducers at the conduit seal, there shall be no union, coupling, box, or fitting between the conduit seal and the point at which the conduit leaves the Division 2 location.

Exception No. 1: Metal conduit that contains no unions, couplings, boxes, or fittings and passes completely through a Class I, Division 2 location with no fittings less than 300 mm (12 in.) beyond each boundary shall not be required to be sealed if the termination points of the unbroken conduit are in unclassified locations.

installation of drain, breather, or combination fittings to guard against water accumulation, which can cause future insulation failures, even though prevalent conditions may not indicate a need.

Exhibit 501.12 illustrates a Class I, Division 1 location using threaded rigid metal conduit or threaded intermediate metal conduit and explosionproof fittings and equipment, including motors, motor controllers, push-button stations, lighting outlets, and junction boxes. The enclosures for the disconnecting means and motor controller for the motor (right portion of the drawing) are placed in a nonhazardous location and are thus not required to be explosionproof.

In Exhibit 501.12, each of the three conduits is sealed on the nonhazardous side before passing into the hazardous (classified) location. The pigtail leads of both motors are factory sealed at the motor-terminal housing, and, unless the size of the flexible fitting entering the motor-terminal housing is trade size 2 or larger, no other seals are needed at this point. Because the push-button control station and the motor controller and disconnect (left portion of the drawing) are considered arc-producing devices, conduits are sealed within 18 in. of the entrance to these enclosures. Seals are required even though the contacts may be immersed in oil.

In Exhibit 501.12, a seal is provided within 18 in. of the switch controlling the lighting. The design of the luminaire, as required by ANSI/UL 844, is such that the explosionproof chamber for the wiring must be separated or sealed from the lamp compartment; hence, a separate seal is not required adjacent to luminaires that comply with ANSI/UL 844. The luminaire is suspended on a conduit stem threaded into the cover of an explosionproof ceiling box. See 501.10 for luminaire requirements.

501.6 Switches, Circuit Breakers, Motor Controllers, and Fuses.

(A) Class I, Division 1. In Class I, Division 1 locations, switches, circuit breakers, motor controllers, and fuses, including pushbuttons, relays, and similar devices, shall be provided with enclosures, and the enclosure in each case, together with the enclosed apparatus, shall be identified as a complete assembly for use in Class I locations.

(B) Class I, Division 2. Switches, circuit breakers, motor controllers, and fuses in Class I, Division 2 locations shall comply with 501.6(B)(1) through (B)(4).

(1) Type Required. Circuit breakers, motor controllers, and switches intended to interrupt current in the normal performance of the function for which they are installed shall be provided with enclosures identified for Class I, Division 1 locations in accordance with 501.3(A), unless general-purpose enclosures are provided and any of the following apply:

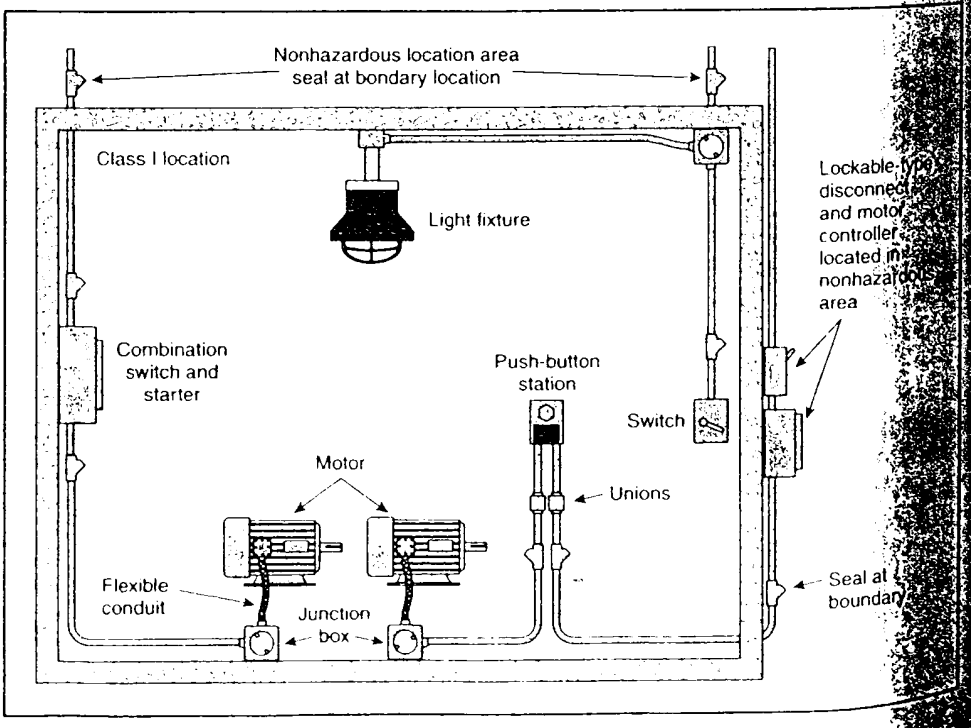

Exhibit 501.12 A Class I, Division 1 location where threaded metal conduits, sealing fittings, explosionproof fittings, and equipment for power and lights are used.

ATTACHMENT B

Marked-Up Version of the Amended Claims

1. (AMENDED) [An apparatus for sealing a] A sealed conduit system, comprising:

(a) a conduit having at least one end;

(b) a housing having an inner chamber and an outer surface;

[(b)] (c) at least one free running hub [disposed on, and mounted to,] coupled to said housing [adapted for coupling to] and the at least one end of [the] said conduit; and

[(c)] (d) a flexible membrane disposed within [the inner chamber of said housing adjacent to] said at least one free running hub.

2. (AMENDED) [An apparatus for sealing a] A sealed conduit system according to claim 1, further comprising means for purging any air, other gases or moisture, which may be trapped within the inner chamber of said housing.

3. (AMENDED) [An apparatus for sealing a] A sealed conduit system according to claim 2, wherein the purging means comprises a threaded port formed in the housing and a threaded plug, which is adapted to mate with said threaded port.

4. (AMENDED) [An apparatus for sealing a] A sealed conduit system according to claim 2, wherein the purging means comprises a spring-loaded ball-type valve.

5. (AMENDED) [An apparatus for sealing a] A sealed conduit system according to claim 1, wherein the housing is defined by a mid-section, which is substantially cylindrically shaped, and two free running hubs are disposed on, and mounted to, opposite ends of the mid-section.

6. (AMENDED) [An apparatus for sealing a] A sealed conduit system according to claim 5, wherein the free running hubs are partially conical in shape and have an inside surface, which has a first set female threads formed thereon for mating with the ends of the conduit.

7. (AMENDED) [An apparatus for sealing a] A sealed conduit system according to claim 6, wherein the inside surface of the free running hubs has a second set of female threads formed thereon for mating with the ends of the cylindrically-shaped mid-section and a shoulder adjacent to the second set of female threads.

8. (AMENDED) [An apparatus for sealing a] A sealed conduit system according to claim 7, wherein a flexible membrane is disposed on the inside surface of each of the free running hubs adjacent to the shoulder.

9. (AMENDED) [An apparatus for sealing a] A sealed conduit system according to claim 1, further comprising a polyurethane-based epoxy sealant compound disposed within said inner chamber.

10. (AMENDED) [An apparatus for sealing a] A sealed conduit system according to claim 9, wherein the polyurethane-based epoxy sealant compound comprises a polymer and a monomer.

11. (AMENDED) [An apparatus for sealing a] A sealed conduit system according to claim 1, wherein the housing is formed of an aluminum alloy.

12. (AMENDED) [An apparatus for sealing a] A sealed conduit system according to claim 1, wherein the flexible membrane is generally disk-shaped, formed of neoprene and has at least one opening for accommodating one or more cables.

13. (AMENDED) A method of sealing a conduit [using the apparatus of claim 1], comprising the steps of:

(a) coupling a sealing apparatus comprising a housing having an inner chamber and an outer surface, at least one free running hub having an inner surface, and a flexible membrane disposed within the at least one free running hub to at least one end of the conduit;

(b) threading any wires or cables contained within said conduit through said flexible membrane; and

(c) filling the inner chamber with a polyurethane-based epoxy sealant compound.

15. (AMENDED) [An apparatus for sealing a] A sealed conduit system, comprising:

(a) a conduit having at least one end;

(b) a housing having an inner chamber and an outer surface;

[(b)] (c) at least one free running hub having [a] an inner surface and a first and second coupling, wherein the first coupling comprises a first set of female threads formed on said inner surface for mating with the at least one end [ends] of the conduit and said second coupling comprises a second set of female threads formed on said inner surface for mating with [the ends] an end of the housing; and

[(c)] (d) a flexible membrane disposed within [the inner chamber of said housing adjacent to] said at least one free running hub.

16. (AMENDED) [An apparatus for sealing a] A sealed conduit system according to claim 15, further comprising means for purging any air, other gases or moisture, which may be trapped within the inner chamber of said housing.

17. (AMENDED) [An apparatus for sealing a] A sealed conduit system according to claim 15, wherein the housing is defined by a mid-section, which is substantially cylindrically shaped, and two free running hubs are disposed on, and mounted to, opposite ends of the mid-section.

18. (AMENDED) [An apparatus for sealing a] A sealed conduit system according to claim [17] 15, wherein [a] the flexible membrane is disposed [on the inside surface of each of the free running hubs] adjacent to [the] a shoulder formed in the inner surface of the at least one free running hub proximate said second coupling.

19. (AMENDED) An apparatus for sealing a conduit according to claim 15, [wherein the] further comprising a sealant compound disposed within said inner chamber, which comprises [is] a polyurethane-based epoxy.

20. (AMENDED) [An apparatus for sealing a] A sealed conduit system according to claim 15, wherein the flexible membrane is generally disk-shaped, formed of neoprene and has at least one opening for accommodating one or more cables.